



# **The Michigan ENHANCE 9-1-1 Grant Project**

GIS Technical Advisory Committee

MiCAMP Conference

September 22, 2011



# Today's Agenda

- What is NG9-1-1
- GIS and 9-1-1 Today
- Midland County GIS and 9-1-1
- GIS in NG9-1-1 Environment
- ENHANCE 9-1-1 Grant
- 9-1-1 GIS Grant Project
- Open Discussion

# What is a PSAP?

- ◆ Public Safety Answering Point (PSAP)
- ◆ 9-1-1 call center
- ◆ Call center responsible for handling emergency number calls for fire, police, and ambulance services
- ◆ NENA glossary definition:
  - ◆ An entity operating under common management which receives 9-1-1 calls from a defined geographic area and processes those calls according to a specific operational policy



# What is NG9-1-1?

# Today's 9-1-1 System – Timeline

**1968:**



**Basic 9-1-1:**

- Copper Land Line
- Analog Technology

**1980s–90s:**  
**Enhanced 9-1-1:**

- ANI / ALI



**1990s – 2000s:**  
**Wireless E9-1-1:**

- Phase I
- Phase II



**Today:**



**Voice over IP, Images,  
Video, Text, Telematics**

# What is NG9-1-1?

## What is NG9-1-1?

- ◆ NG9-1-1 is best described as an open-standard-based, robust system of systems, that allows the public to use **any device** to request help or send information to the appropriate public safety agency
- ◆ NG9-1-1 is often considered a network, but it doesn't stop there – It's more than just technology!
- ◆ It contains all of the functions of the legacy 9-1-1 system while allowing for greater interoperability, convergence and better utilization of financial and human resources, in a secure environment





# What is NG9-1-1?

## 9-1-1 is not broken

- Initially designed to do one thing – complete emergency **calls**
  - 3 digit dialing from fixed locations (landline) to reach emergency response
- CAMA trunks added ANI
- E9-1-1 adds in ALI w/ANI

## New technologies caused a patchwork of modifications

- Wireless** added through considerable system modification and effort (patches)
- VoIP** added but still has limitations (more patches)
- Legacy 9-1-1 Platform is not extensible to support newer technologies

9-1-1 Today	NG9-1-1
Primarily voice calls via telephone handsets	Voice, text, or video information available from many different types of communication devices
Minimal data available	Advanced data sharing is available
Access to services are locally provided, backup is local, usually not enhanced	Enhanced capabilities; physical location of PSAP becomes less important
Routing based on phone number / MSAG	Ability to route “calls” more accurately

# Current Relationship With GIS and 9-1-1



# Overview of GIS and 9-1-1 Today

- ◆ Locate address, coordinates, physical location on earth's surface
- ◆ Plays an important role in providing location to 9-1-1 call takers on mapping displays in PSAP, especially during wireless calls
- ◆ Importance of accurate and complete GIS data effective decision-making by call takers – trust in the data
- ◆ What if GIS data is incorrect or incomplete?
  - Incorrect routing of emergency responders
  - Increases response time
  - Lives in jeopardy – every second counts

# Overview of GIS and 9-1-1 Today

## Automatic Location Identification (ALI) Database

814-555-7777

814-555-7777

John Doe  
111 Maple Ln  
Anytown,  
USA  
ESN 123

	PHONE	HOUSENO	HOUSESUF	STREET	COMMUNITY	STATE	ESN	CUSTOMER
	814-555-7474	400		9TH ST	ANYTOWN	PA	123	J SMITH
	814-555-7777	111		MAPLE LN	ANYTOWN	PA	123	JOHN DOE
	814-555-1234	811		11TH ST	ANYTOWN	PA	123	LARRY GREENE
	814-555-2345	801		TERRACE BLVD	ANYTOWN	PA	234	MIKE JONES
	814-555-1277	432		WARREN AVE	ANYTOWN	PA	456	ACME IND
	814-555-7643	716		ARMSTRONG PL	ANYTOWN	PA	123	FACTORY 2
	814-555-9876	123		WARREN AVE	ANYTOWN	PA	123	JAMES WOOD
	814-555-8532	510		7TH ST	ANYTOWN	PA	123	PHIL BLACK
	814-555-8712	706		OAKHILL LN	ANYTOWN	PA	123	BUD SMITH
	814-555-5678	521		WOODWARD AVE	ANYTOWN	PA	765	JOE COFFEE
	814-555-1267	456		WOODWARD AVE	ANYTOWN	PA	765	JANE DOE

## Master Street Address Guide (MSAG)

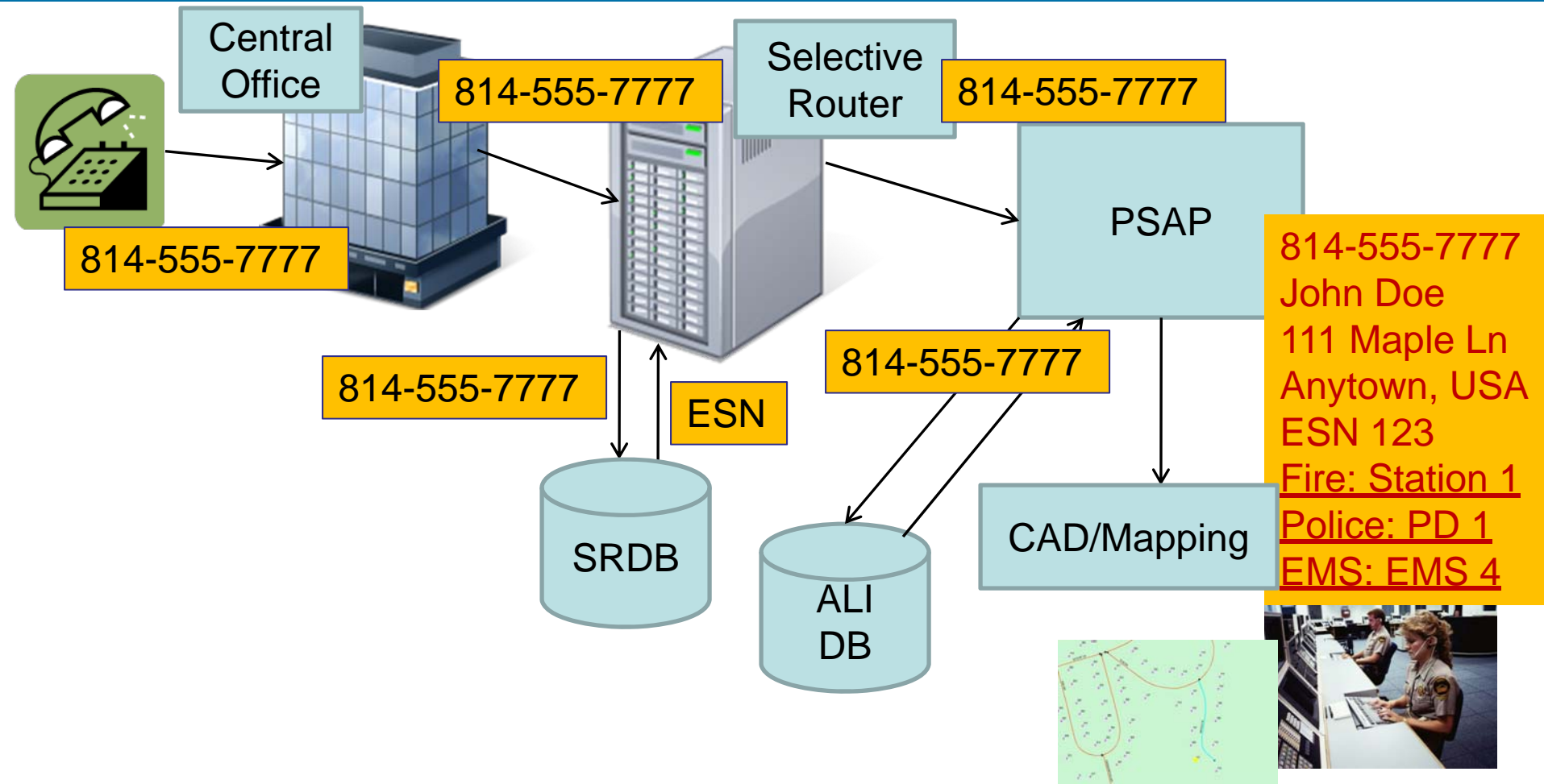
	PRE	STREETNAME	STRE	POST	LOW	HIGH	SIDE	COMMUNITY	STATE	ESN
	N	6TH	ST		376	398	B	ANYTOWN	PA	020
		MAPLE	LN		100	156	B	ANYTOWN	PA	123
	N	WARREN	AVE		700	798	B	ANYTOWN	PA	020
		WOODWARD	AVE		1100	1198	B	ANYTOWN	PA	020
	N	6TH	ST		614	698	B	ANYTOWN	PA	020
		HOSE HOUSE	ALY		401	499	B	ANYTOWN	PA	020
		HOSE HOUSE	ALY		301	399	B	ANYTOWN	PA	020
		HOSE HOUSE	ALY		299	299	B	ANYTOWN	PA	020
	N	5TH	ST		700	706	B	ANYTOWN	PA	020
	N	5TH	ST		628	698	B	ANYTOWN	PA	020
	N	5TH	ST		600	626	E	ANYTOWN	PA	020

814-555-7777

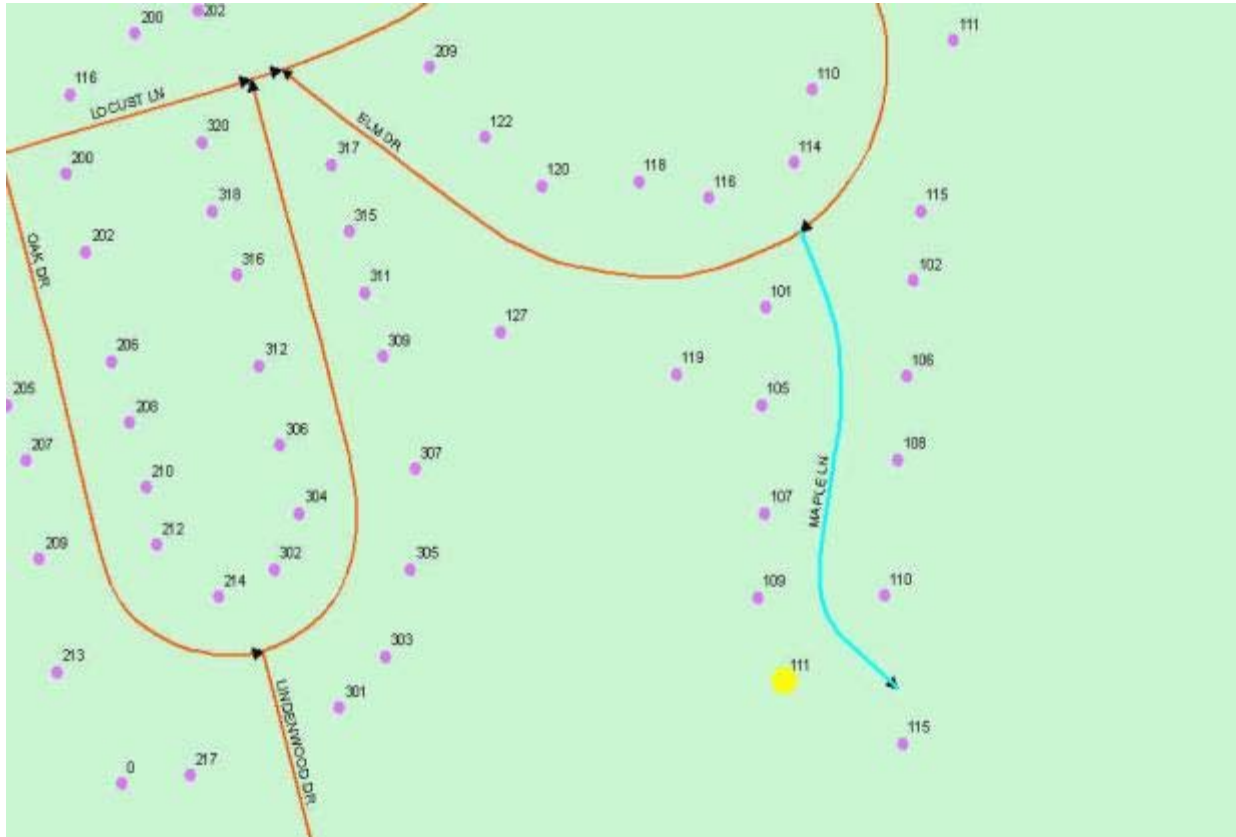
John Doe  
111 Maple Ln  
Anytown, USA  
ESN 123  
Fire: Station 1  
Police: PD 1  
EMS: EMS 4

# Overview of GIS and 9-1-1 Today

## Routing of Wireline Call and Use of GIS During 9-1-1 Call

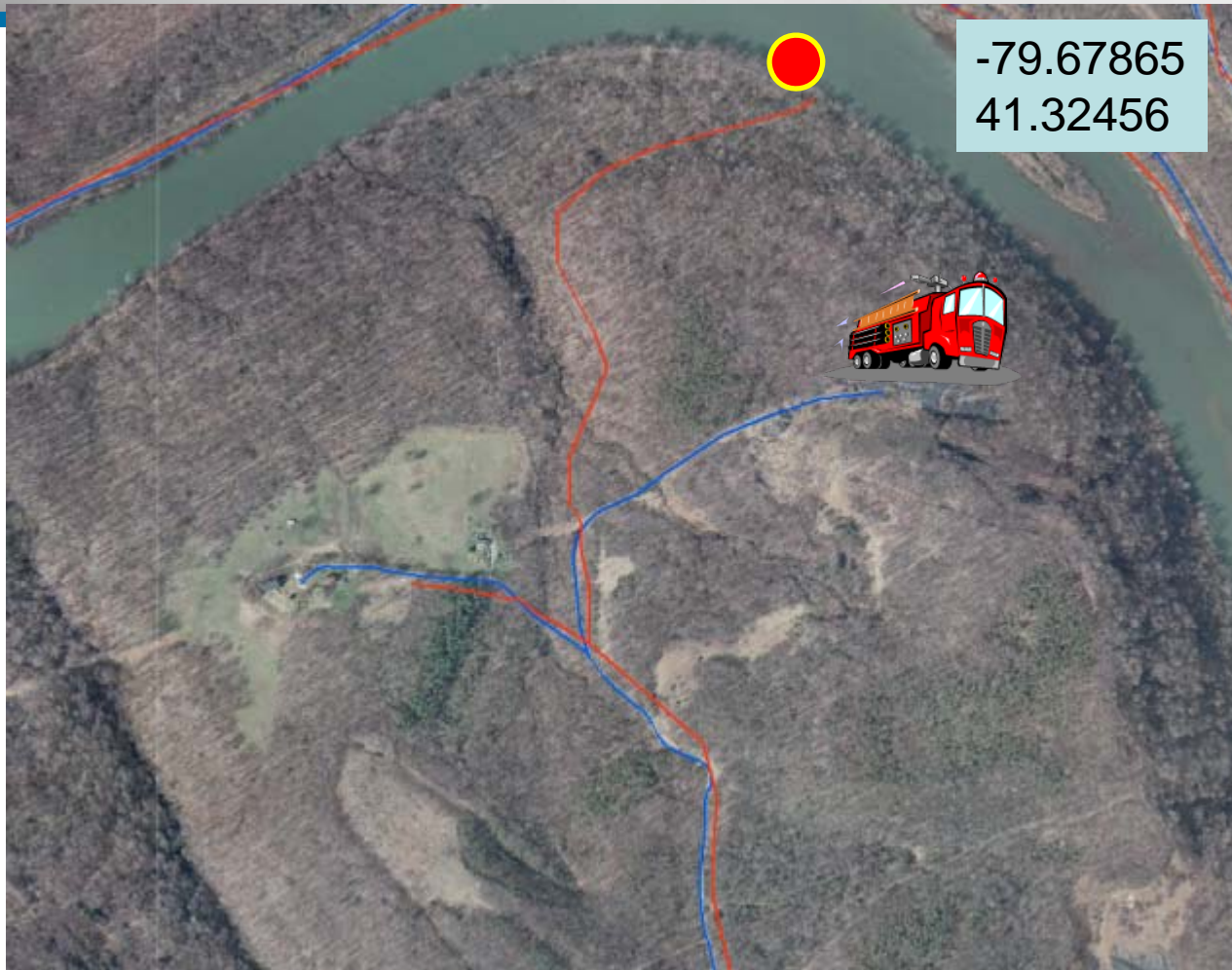


# Overview of GIS and 9-1-1 Today

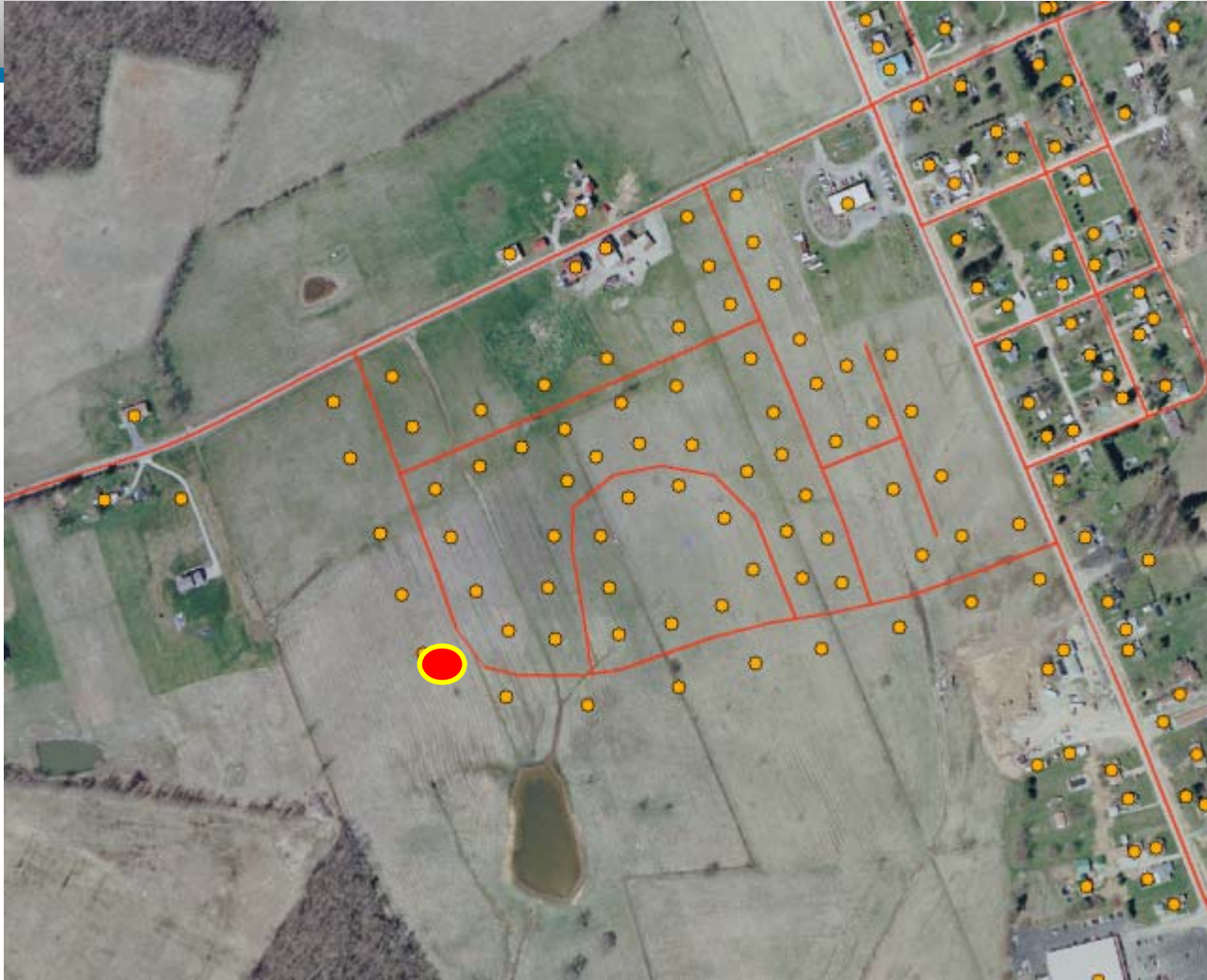




# Issues Today – Accuracy



# Issues Today – Current Data





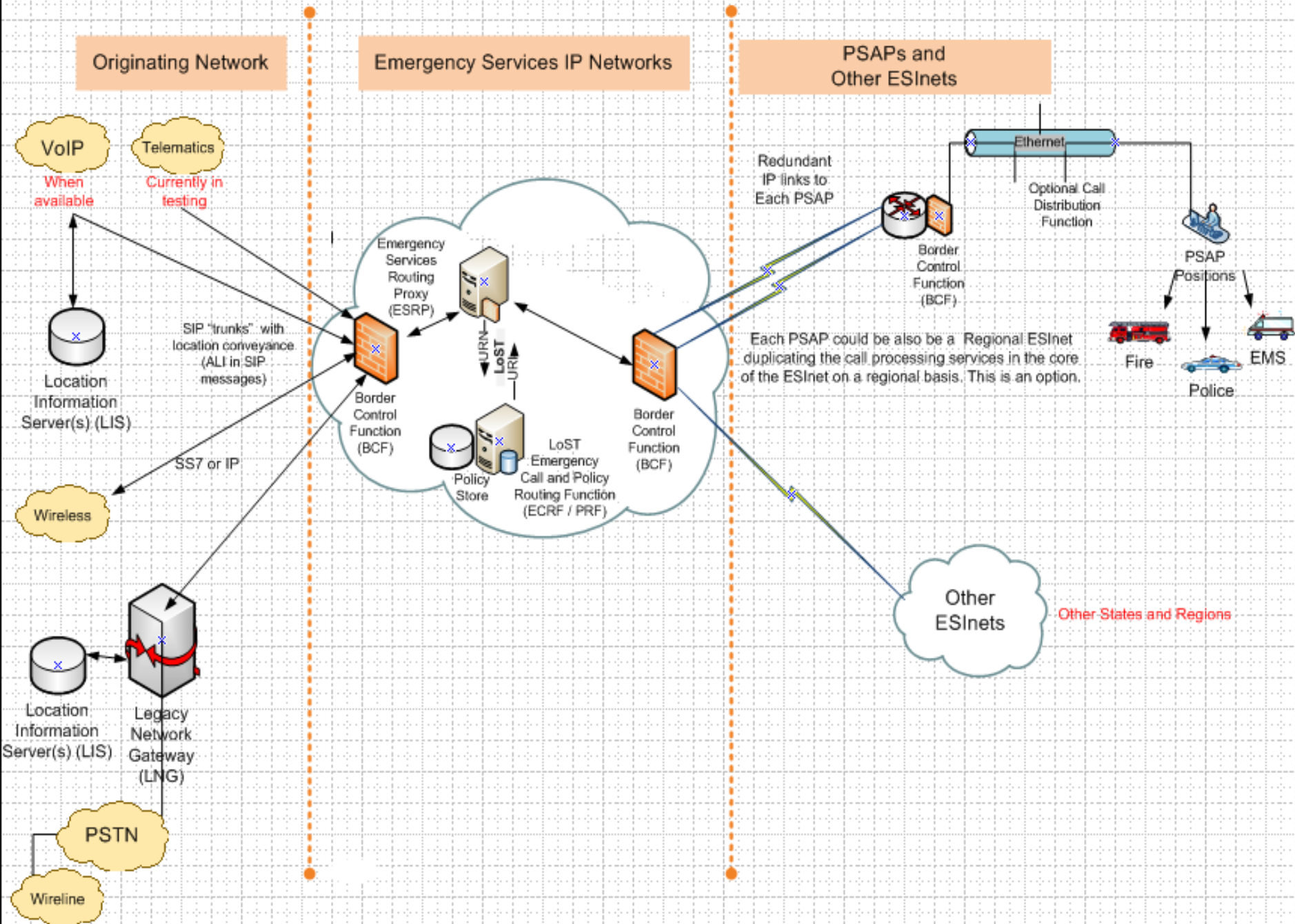
# Role of GIS in a Next Generation 9-1-1 (NG9-1-1) Environment

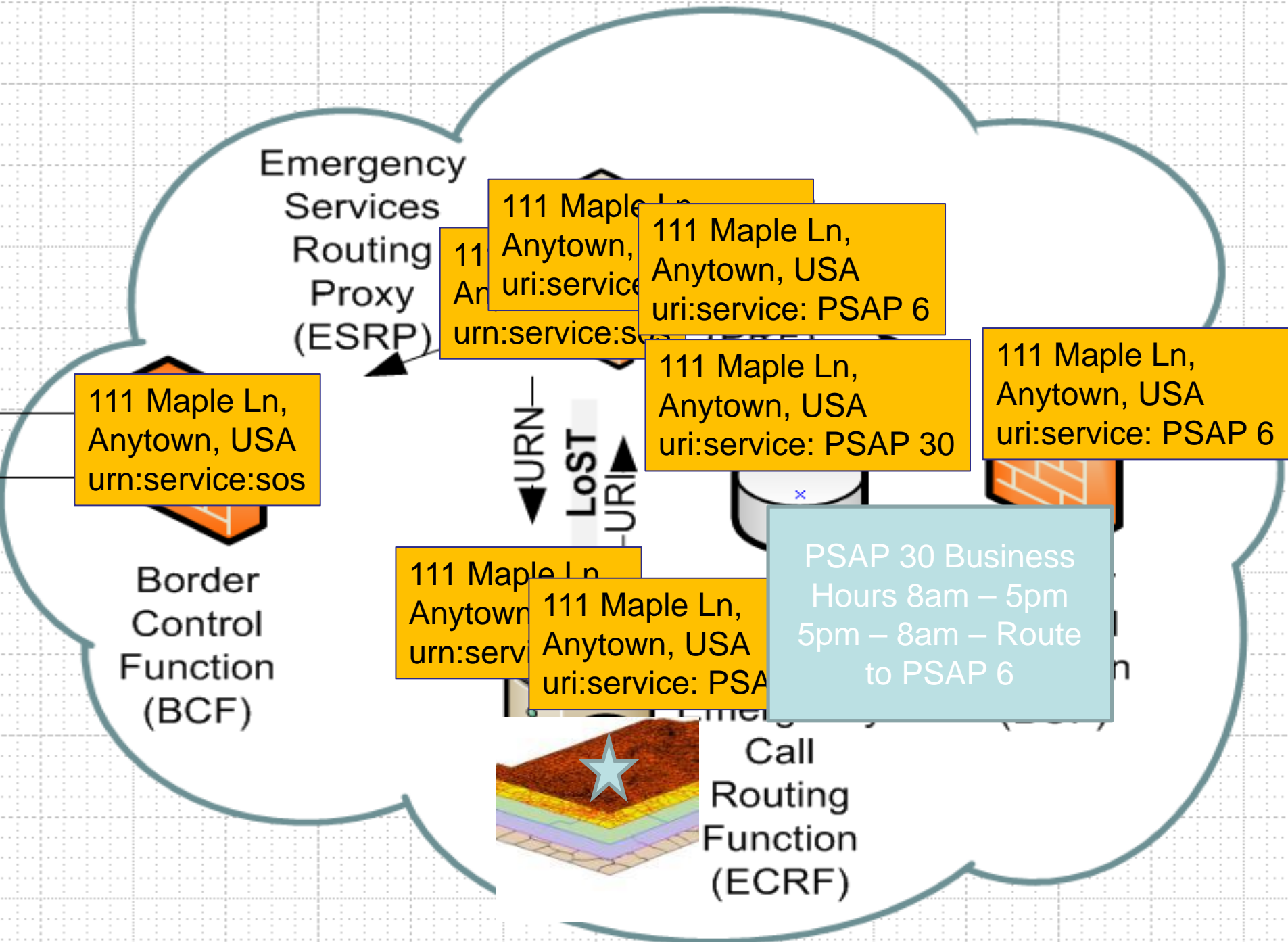
# GIS in NG9-1-1

- ◆ GIS plays crucial role in NG9-1-1 call routing - ECRF
- ◆ Routing database is GIS data centric
- ◆ Accuracy of GIS data is paramount
- ◆ Shared data – coordination
- ◆ 9-1-1 authority is responsible for the data
- ◆ Location is delivered with call
- ◆ Location is pre-validated using GIS data - LVF

# Full NG-9-1-1

# Conceptual Only





# 9-1-1 GIS Data - Focus Themes

- ◆ Accuracy
- ◆ Maintenance
- ◆ Standards
- ◆ Policy and Governance

# 9-1-1 GIS Grant Project



# ENHANCE 9-1-1 Grant

- ◆ History
- ◆ Background
  - Act in place in 2004
  - Funds authorized, but not appropriated until 2009
- ◆ June 2009 announcement
- ◆ June 2009 SNC approval of application
- ◆ August 2009 application due
- ◆ Sept 2009 award announced of \$1,699,999
  - \$1,108,704 base
  - \$591,295 supplemental

# What is the project NOT about?

- ◆ NOT Replacing the local 9-1-1 GIS data systems and making the state responsible for all PSAP GIS data
- ◆ NOT For use to create a single statewide CAD or PSAP
- ◆ NOT Creating a platform for non-public safety purposes

# What Grant Project IS About

- ◆ 9-1-1 GIS Repository
- ◆ Statewide Public Safety Answering Point (PSAP) Boundary Layer
- ◆ Statewide Road Centerline Layer

# Project Benefits

- ◆ Enterprise system for integrated 9-1-1 GIS datasets across the state
- ◆ Data interoperability across jurisdictions – integrated datasets
  - Provide opportunity to share data today
- ◆ Additional quality control and reporting for local GIS data
- ◆ Edge-matching and discrepancy resolution of GIS data across jurisdiction boundaries
- ◆ ‘Gap-fill’ in areas to get to a baseline level of data across the State
- ◆ 9-1-1 GIS Database will provide the data to ECRF/LVF providers in NG9-1-1

# Formation of the TAC:

- ◆ Established as a technical advisory committee to the Local and State Cross Boundary Technology Steering Committee
  - Local representation from the 9-1-1, IT, and GIS communities to provide first hand knowledge and experience to the 9-1-1 GIS Grant Project
  - Will make recommendations on project direction to the Local and State Cross Boundary Technology Steering Committee

# Project Organization Overview

- ◆ Project Sponsor

Harriet Miller-Brown – Michigan 9-1-1 State Administrator

- ◆ DTMB Project Staff (CSSTP)

Eric Swanson - CSSTP, Project Sponsor, Director

Laura Blastic – CSSTP, Project Manager, Geo-Framework  
Services Manager

Paul Harmon – CSSTP, Communications Liaison

Mathi Ramachandran – CSSTP, Data Architect

John Clark – CSSTP, GIS Solutions Architect

Mark Holmes - L.R. Kimball



# Project Organization Overview

## Technical Advisory Committee (TAC)

### ➤ 9-1-1

- Mike Muskovin, Ottawa County
- Mike Szor, Alpena County
- Phyllis Fuller, Barry County
- Harriet Miller-Brown, State 9-1-1 Office

### ➤ IT

- Ron Plamondon, Leelanau County
- Dawn Siegel, Oakland County
- Tom Shewchuk, Ingham County

### ➤ GIS

- Scott Ambs, Jackson County
- Chris Cantrell, Midland County
- Nathan Fazer, Eastern UP Planning Region
- Eric Swanson, CSSTP

# Role of the TAC:

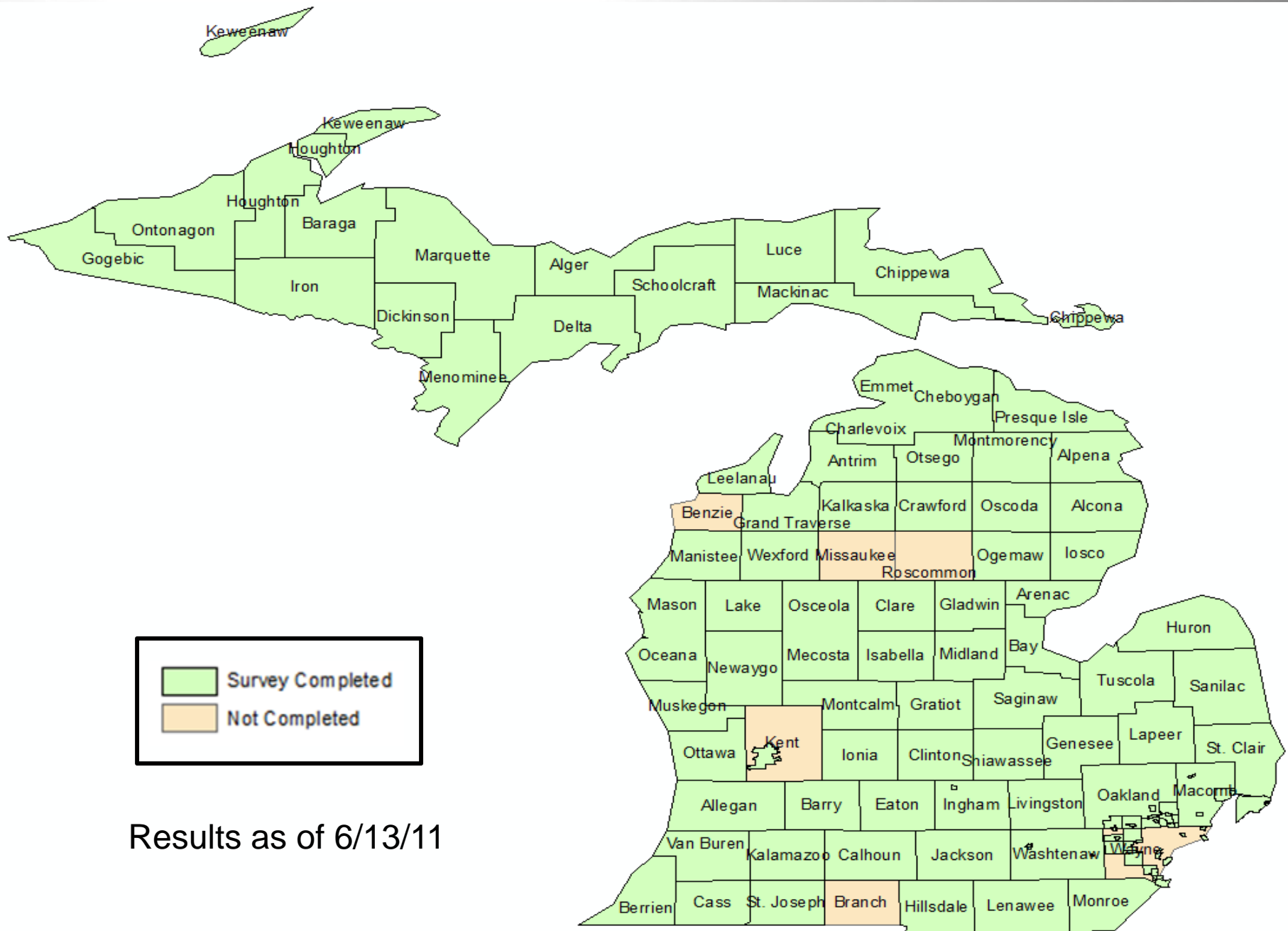
- ◆ Provide local insight and collaboration as project develops
  - Project documents (e.g. Charter, MOA's)
  - Develop technical standards
  - Develop communication and outreach plan
  - Initial data assessments

# Project Tasks Overview

- ◆ Initial Assessment and Data Development Plan
- ◆ Community Outreach
- ◆ Statewide 9-1-1 Database Design
- ◆ Develop and Implement Database and Application Architecture
- ◆ Develop Statewide PSAP Boundary Layer
- ◆ Develop Complete Statewide GIS Road Centerline and an Initial Point Address Layers
- ◆ Maintenance Plan and Workflows Implementation

# 9-1-1 GIS Survey

- ◆ Get a current snapshot of GIS/9-1-1 systems today
- ◆ Sent to PSAP Managers/Directors and County 9-1-1 Coordinators
- ◆ Collaborate with GIS resources to fill out survey
- ◆ Survey has guided the planning of the project



Results as of 6/13/11

# System Architecture

- ◆ GIS Repository

- Data Standards

- Road Centerlines and PSAP Boundaries – Mandatory
    - Address Points and Emergency Service Zones
    - 9-1-1 GIS Data Standards for GIS Repository
      - Incorporates current 9-1-1 standards
      - Includes NG9-1-1 data standards for future implementation

- Public Comment Period

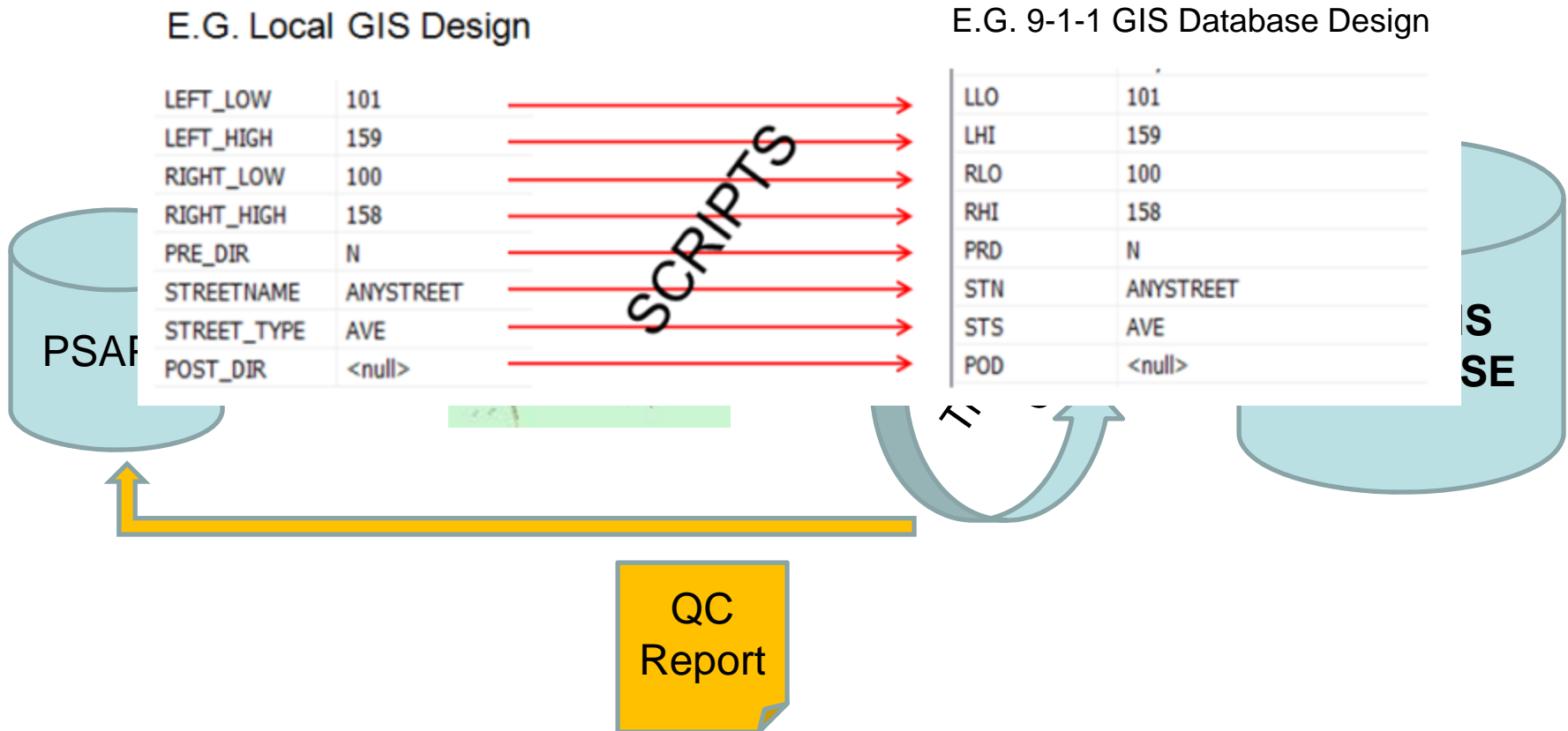
- Beginning September 30, 2011 Until October 14, 2011
    - Document available at:
      - [www.michigan.gov/911gisgrant](http://www.michigan.gov/911gisgrant)
      - [www.michigan.gov/snc](http://www.michigan.gov/snc)
    - Comment form also available for download at above web sites



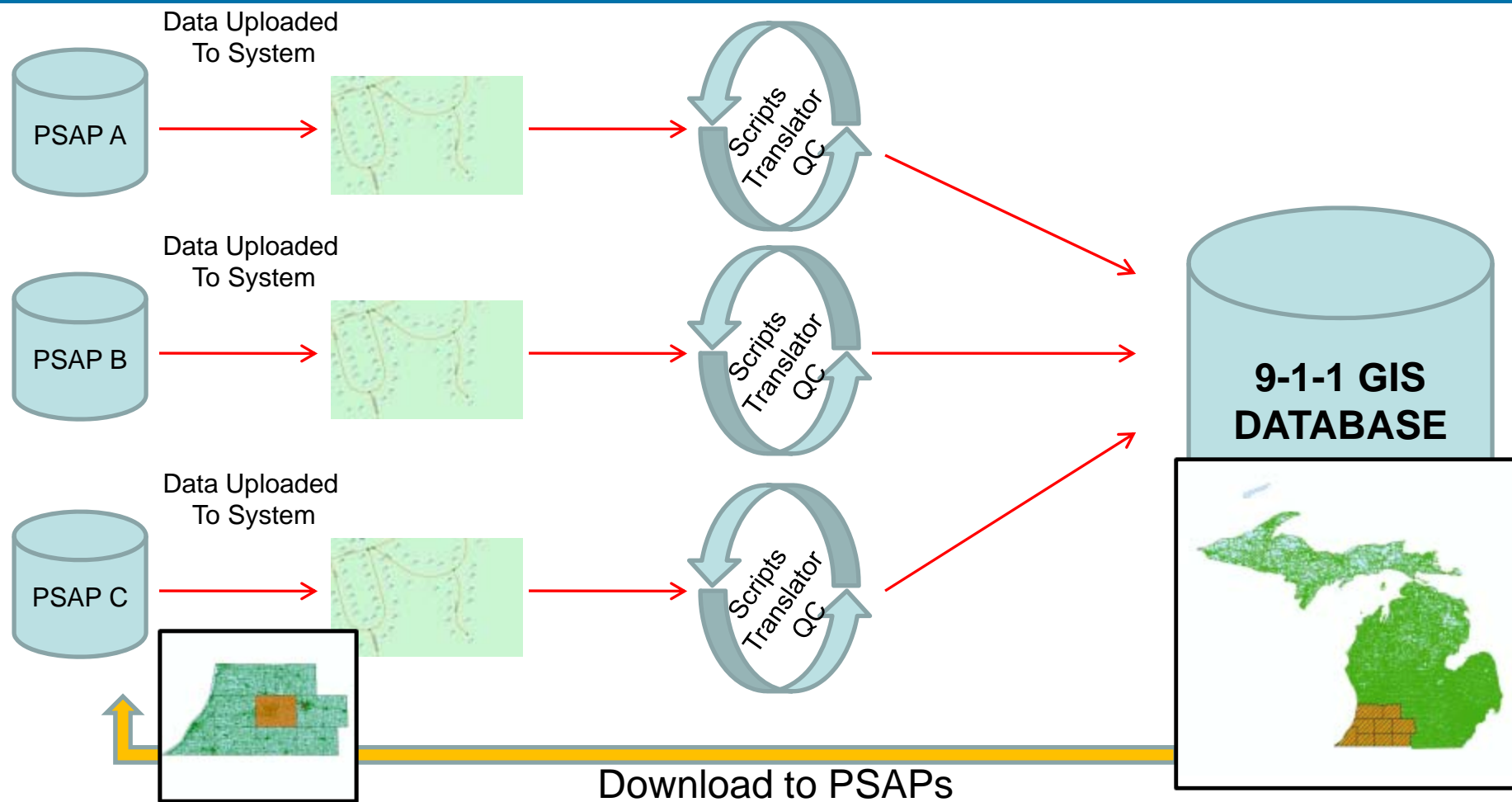
# System Architecture

- ◆ User Interfaces Into System
  - ETL Processes
    - Translation scripts
    - Projections
    - Field mapping
  - Interactive Map
    - Red lining of edits to road, PSAP boundaries
    - Data update approval processes
  - Quality Control Tools and Reports
  - Import and Export Utilities

# Data Flow to 9-1-1 GIS Database



# Data Interoperability



# Data Sharing and Agreements

- ◆ Enhanced Access to Public Records Act
  - DTMB Policy Developed Specific to Project
    - Local Participant Will Need a Local Enhance Access to Public Records Act Policy
    - Project Will Provide Examples of Enhance Access to Public Records Act Policies – If Local Participant Does Not Have One in Place
  - Memorandum of Agreement Between CSSTP and Each Participating Entity
    - Outlines Roles and Responsibilities of CSSTP and Participants
    - Established Disclaimers for Data Sharing
    - Signed Agreement

# Local Grant Program

- ◆ Developing Grant Guidelines
- ◆ Developing Grant Application Form
- ◆ Proposed Timetable
  - Nov 1, 2011 – Local Grant Program Opens
  - Jan 3, 2012 – Local Grant Application Deadline
  - Feb 1, 2012 – Local Grant Award Notifications
  - June 30, 2012 – Local Grant Project Completion
- ◆ Local Grants will be Prioritized Based on the ENHANCE 9-1-1 Grant Project Requirements for Road Centerlines

# Community Outreach

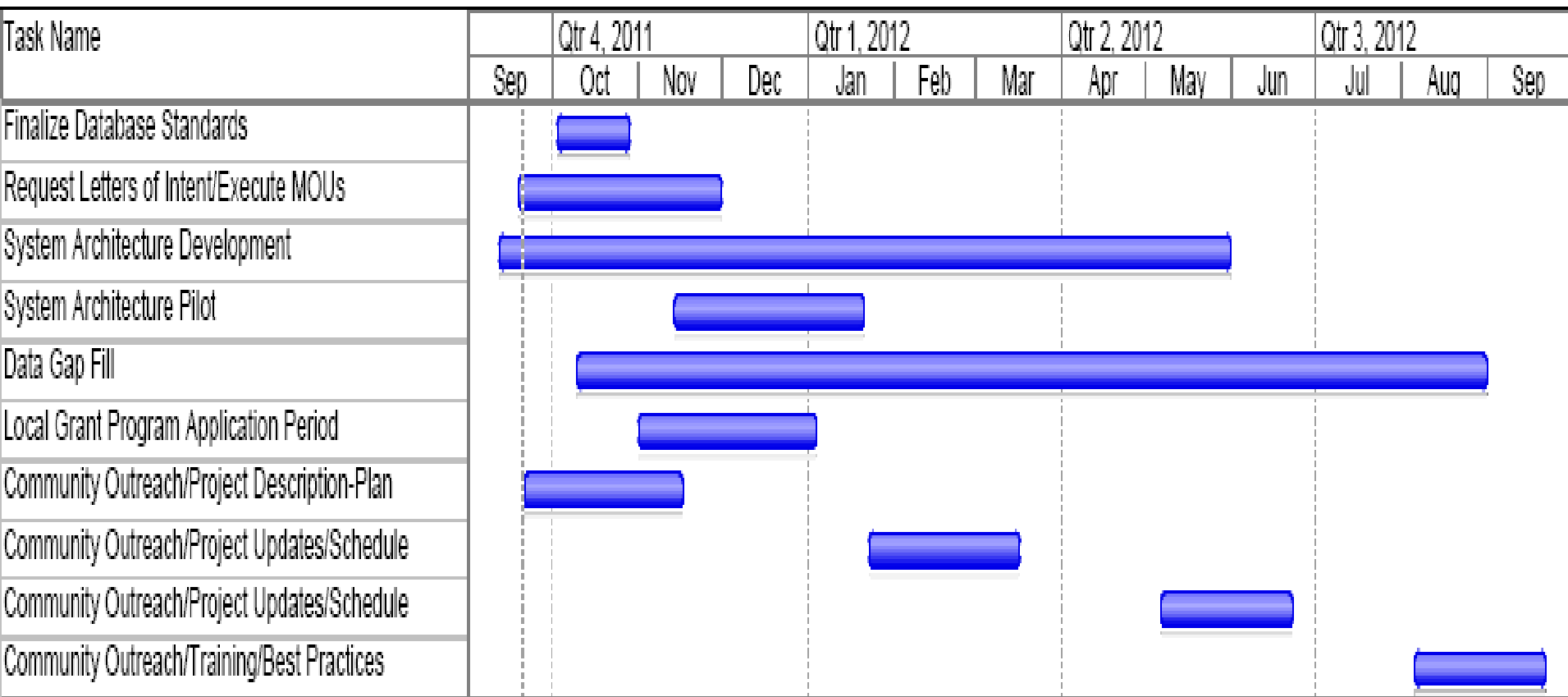
- ◆ Request for Letters of Intent to Participate
- ◆ Participating Entities for Pilot
  - Alpena Co., Jackson Co., Leelanau Co., Barry Co., Midland Co., Allegan County
- ◆ Steps to Participation
  - Sign Letter of Intent to Participate
  - Sign Memorandum of Agreements Between Participant and CSSTP
  - Implement Local Enhance Access to Public Records Act Policy
  - Provide Data to CSSTP for Data Assessment
- ◆ Talk to your 9-1-1 department
  - Discuss Participation, Offer to Assist



# Next Steps

- ◆ Initiate Memorandum of Agreements (MOA) and Data Sharing Agreements with Participants
- ◆ Finalize Database Standards After Comment Period
- ◆ System and Application Development
- ◆ Schedule and Conduct Community Outreach

# Timeline



# More Information

- ◆ [www.michigan.gov/911GISGrant](http://www.michigan.gov/911GISGrant)
- ◆ [www.michigan.gov/snc](http://www.michigan.gov/snc)
- ◆ Harriet Miller-Brown
  - [MillerHR@michigan.gov](mailto:MillerHR@michigan.gov)
  - 517-241-0080
- ◆ Laura Blastic
  - [blasticl@michigan.gov](mailto:blasticl@michigan.gov)
  - 517-373-7910

# Questions

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Open Discussion